EXHIBIT A

DRAFT

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL PROGRAM
PRELIMINARY ENDANGERMENT ASSESSMENT REPORT

CALIFORNIA DEPARTMENT OF PARKS AND RECREATION
CANDLESTICK POINT STATE RECREATION AREA
SAN FRANCISCO, CALIFORNIA

FEBRUARY 8, 1993

CALSITE (ASPIS) DATABASE NUMBER: 38950001

Contractor:	Holguin, Fahan & Associates, Inc.
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Client:	California Department of Parks and Recreation
Address:	211 Garden Road Monterey, California 93940
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1. INTRODUCTION

Establishment of a nature area has been proposed for an approximately 34-acre site in the northern section of the Candlestick Point State Recreation Area (SRA), San Francisco, California (see Figure 1 - Site Location Map). The proposed nature area lies within an industrial area adjacent to Hunters Point Annex (Hunters Point, formerly Hunters Point Naval Shipyard) to the northeast, the South Basin of the San Francisco Bay (the Bay) to the east, and Candlestick Park to the south.

The history of industrial land use within and surrounding the proposed nature area may have resulted in the release of chemicals to soil and groundwater. In addition, indiscriminate dumping of wastes has reportedly occurred throughout the area for many years, which also may have resulted in the introduction of hazardous waste to the local environment. Two combined sewer overflow (CSO) outfalls from the City of San Francisco (the City) sewer system open to the Yosemite Canal (the Canal). These outfalls may discharge combined storm water and sewage into the Canal and the Bay during large storm events.

The Candlestick Point SRA General Plan (California Department of Parks and Recreation (DPR), February 1987) proposes the creation of a wetland recreational and educational wildlife habitat area. Ideally, the site would be returned to its historic native state with tidal salt marshlands, small coves and inlets, and tidal wetlands. Additionally, an existing seasonal freshwater wetland in the northeastern section of the area would be enhanced and expanded.

The entire nature area would provide a protected wildlife habitat for existing native species of shorebirds and small mammals, with a comprehensive focus on increasing present populations while re-introducing previously eradicated native wildlife and vegetation. Creation of a wetland environment in this area will involve excavation and removal of some of the existing imported fill, dredging the existing Canal, and stabilizing the embankment along the southern side of the Canal. Figure 2 - Historic Shorelines and Figure 3 - Proposed Shoreline show the historic, current, and proposed shorelines of the Canal area. Land areas east of the historic shorelines consist of imported fill and were at one time marshland or submerged below the Bay.

1.1 PURPOSE OF REPORT

The purpose of the Preliminary Endangerment Assessment (PEA) investigation and report is to provide preliminary data in order to identify and characterize potential environmental problems and assess the suitability of the site for the proposed restoration as a wetland nature area. The PEA report also proposes a groundwater monitoring plan and remedial alternatives for any soil contamination encountered on the site.

This report documents the results of preliminary soil and groundwater quality investigations performed by Holguin, Fahan & Associates, Inc., (HFA) to characterize the site. The work was commissioned by the San Francisco State University Romberg Tiburon Center (RTC) for the DPR Candlestick Point SRA under contract number #9122-6257 dated March 24, 1992. The work was conducted in accordance with HFA's work plan that was submitted to the DPR on July 5, 1991.

A list of references used in the development of this report is included in Attachment 1. The volume of reports and files for sites adjacent to and within the vicinity of the Candlestick Point SRA was prohibitive to including the reports and files as appendices to this report.

2. SITE DESCRIPTION AND HISTORY

2.1 SITE IDENTIFICATION

2.1.1 Site Ownership and Location

A. Site Owner:

Name:	State of California Department of Parks and Recreation
Address:	1150 Carroll Avenue, San Francisco, California, 94124
Mailing Address:	211 Garden Road, Monterey, California, 93940
Telephone number:	(408) 649-2862
Date of ownership:	January 24, 1984 (effective date of consolidation of assessor's parcels and designation as a DPR site)

B. Site Location:

Name:	Candlestick Point State Recreation Area
Address:	The proposed 34-acre nature area is located on the eastern shore of the San Francisco Peninsula in the Candlestick Point SRA, City of San Francisco, California. The property is bounded by Thomas Avenue and the Griffith Street Pump Station to the north; Yosemite Avenue and Candlestick Park to the south; the San Francisco Bay and Hunters Point Annex to the east; and Hawes Street, a U.S. Navy railroad right-of-way, and commercial/industrial businesses to the west.
County:	San Francisco
Other Site Names:	None
E.P.A. Identification Number	None has been issued to date.
CALSITE (ASPIS) Database No:	38950001
Assessor's Parcel Numbers (APN) (all or part of parcels):	4805, 4806, 4813, 4814, 4825, 4826, 4832, 4833, 4834, 4844, 4845, 4846, 4853, and 4876
Assessor's Parcel Maps:	See Attachment 2
USGS Quadrangle:	San Francisco South, 7.5-minute series
Township, Range:	T. 2 S., R. 5 W.
Baseline and Meridian:	Mount Diablo Baseline and Meridian
Latitude and Longitude:	Lat: 37°44'06" N., Long: 122°23'18" W.
Map of Site Location:	See Figure 1

Avenue, is a food distributor. The number of employees at each of the adjacent businesses ranges from 8 to 30 people.

D. Day Care Center: No day care centers were found to exist within one mile of the site.

E. Nursing Home: No nursing homes were found to exist within one mile of the site.

F. Senior Citizen Community: No senior citizen communities were found to exist within one mile of the site.

G. Hospital: No hospitals were found to exist within one mile of the site.

4.1.10 Sensitive, Threatened, or Endangered Species (within one mile of the site)

There are no critical habitats for sensitive, threatened, or endangered species in the area. Migratory shore birds feed in the Canal at low tide and water fowl feed during high tide. The Canal is used as a tidal wetland. The California Department of Fish and Game has noted that burrowing owls (*Athene cunicularia*), which exist at Candlestick Point SRA, are species of special concern but not listed as endangered.

4.1.11 Flora, Fauna, or Ecosystems Known to be Affected by Contaminants from the Site

None.

4.2 FACTORS RELATING TO WATER PATHWAYS

4.2.1 Precipitation

A. Net Annual Average Precipitation: The net annual average precipitation, as reported by the National Weather Service, is 19.71 inches for South San Francisco.

B. One-Year, 24-Hour Average Rainfall Level at the Site: The one year, 24-hour average rainfall level at the site, as reported by the National Weather Service for the years 1950 through 1990, is: January, 0.14 inch; April, 0.07 inch; July, 0.01 inch; and October, 0.02 inch.

4.2.2 Site Drainage Characteristics

A. Surface Water Drainage Patterns: Surface drainage in paved areas is to City-owned storm drains and catch basins; on unpaved areas of the site, drainage is to the Canal.

B. Ponds and Flood Plains: None on site. In the northeastern portion of the site near the location of well MW-1, seasonal fresh water ponding occurs. The freshwater ponding has no surface outlet to the Canal or to the Bay.

C. Streams: No streams exist at the site. The only surface water at the site, other than the Canal and Bay water, are two freshwater springs located on the western and northern shorelines of the Canal below the high tide level (see Figure 4 for the location of the springs). Both of the springs flow throughout the year into the Canal and are visible at low tide.

D. Marshes or Wetlands: A small area of salt marsh grasses is currently located on the northwestern shoreline of the Canal (see Figure 4).

4.2.3 Site Hydrogeology

A. Known Aquifers: The groundwater beneath the site is a saline coastal aquifer, in hydrologic communication with the Bay and under the influence of tidal fluctuations. Minor amounts of fresh water flow into the area via the two subterranean springs that discharge into the Canal on the western and northern shorelines.

B. Depth to Groundwater: Groundwater in the area has been reported at depths between 5 and 16 feet below ground level in nearby monitoring wells (Dames and Moore, 1988, and Levine-Fricke, 1988). Groundwater was encountered at depths between 4.2 and 12.6 feet below ground level within monitoring wells located on the study site.

ELEVATION AND DEPTH OF GROUNDWATER

WELL NUMBER	FLOATING PRODUCT (inches)	WELL ELEVATION (feet above MSL)	DEPTH TO GROUNDWATER (feet BGL)	ELEVATION OF GROUNDWATER (feet above MSL)
MW-1	NONE	10.3	8.52	1.78
MW-2	NONE	14.3	12.60	1.70
MW-3	NONE	10.02	8.30	1.72
MW-4	NONE	4.8	4.20	0.60
MW-5	NONE	10.9	9.15	1.75
MW-6	NONE	8.6	6.64	1.96

MSL = Mean sea level. BGL = Below ground level. Elevations relative to the high tide mark on the Griffith Street CSO. The mark was 6.0 feet below the top of the storm drain at street level. Groundwater levels were measured on June 8, 1992, between 10:50 and 11:30. On this date, using published correction differences for Point Avisadero, Hunters Point, high tide was +6.8 feet at 19:42 and low tide was +0.7 feet at 12:46 (tide tables and correction data are included in Attachment 8).

EXHIBIT B

BEVERIDGE & DIAMOND PC

July 30, 2008

MEMORANDUM

TO: Michael Massey, Esq., Office of Regional Counsel
U.S. Environmental Protection Agency, Region IX

FROM: Nicholas W. van Aelstyn and Jia Yn Chen
Beveridge & Diamond, PC

RE: Certain Possible Sources of Contamination at the Yosemite Creek Site

This memorandum summarizes available evidence regarding certain possible sources of environmental contamination at the Yosemite Creek Site, San Francisco, California ("Yosemite Creek" or the "Site"). It addresses the property in the immediate vicinity of Yosemite Creek and focuses upon (a) data regarding soil and groundwater contamination near Yosemite Creek, and (b) historical uses of parcels located near Yosemite Creek, many of which provided the sample locations for the soil and groundwater data discussed herein.

As discussed below, many chemicals have been found in the soil and groundwater near Yosemite Creek. These chemicals include all of the chemicals of concern ("COCs") identified by the U.S. Environmental Protection Agency ("EPA") at the Site. Moreover, this area has a history of industrial uses including an auto wrecking and salvage yard. This evidence indicates that these COCs could have been discharged into Yosemite Creek by groundwater migration or surface water runoff from these nearby properties.

I. BACKGROUND

Yosemite Creek is located near the intersection of Yosemite Avenue and Hawes Street in San Francisco. *See* EPA Action Memorandum at 2. According to EPA, "[s]ampling carried out at [Yosemite Creek] has identified the presence of multiple contaminants in sediments" including polychlorinated biphenyls (PCBs), chlorinated pesticides (specifically DDT, Chlordane, and Dieldrin) and heavy metals [lead, mercury and zinc]." *See* General Notice of Potential Liability, Yosemite Creek Superfund Site, San Francisco, CA (February 21, 2008) at 1.

Several sources of information exist regarding contamination in soil and groundwater near Yosemite Creek and past historical land uses in the area. Much of this information comes from documents prepared for the California Department of Parks and Recreation ("DPR"), which has plans to restore wetlands and to create a park around Yosemite Creek; this is known as the Yosemite Slough Wetlands Restoration Project (the "Park"). The site for the proposed Park is described as the area located on the eastern shore of the San Francisco Peninsula in the Candlestick Point State Recreation Area ("Candlestick Point SRA") bounded by Thomas Avenue and the Griffith Street Pump Station to the north; Yosemite Avenue and Candlestick Park to the south; the San Francisco Bay and Hunters Pont Annex to the east; and Hawes Street, a U.S. Navy railroad right-of-way and commercial and industrial businesses to the west. *See, e.g.,* California Environmental Protection Agency, Department of Toxic Substances Control Program Preliminary Endangerment Assessment Report, California Department of Parks and Recreation, Candlestick Point State Recreation Area, San Francisco, California (February 8, 1993)

("Candlestick Point PEA") at 3, Figure 2.1 (attached as Exhibit A). This memo focuses primarily on shore properties within this area that are very near the northern and southern shores of Yosemite Creek.

DPR began property acquisition for the Park in the early to mid-1970's. *Id.* at 11. This ownership may include parcels of land (APN 4832-4834) that lie underneath Yosemite Creek. *Id*. at 3, Exhibit A (Figure 2.1). However, the ownership status of these parcels is unclear; the Candlestick Point PEA also states that these parcels are "***projected*** APN 4832 (eastern half), 4833 and 4834." *Id*. at 5 (emphasis added).

As recognized in the EPA Action Memorandum, "[p]otential contaminant pathways into [Yosemite Creek] include groundwater, surface runoff, and eroded sediment." EPA Action Memorandum at 2. Although local groundwater flow appears to be variable and is influenced in part by tidal action in San Francisco Bay, "[o]n a regional basis, groundwater flows toward the Yosemite Slough and the adjacent San Francisco Bay." Phase II Environmental Assessment, Yosemite Slough Wetlands Restoration, Northgate Environmental Management, Inc., February 11, 2005 ("Phase II Report"). "Surface drainage in paved areas is to City-owned storm drains and catch basins; on unpaved areas of the [proposed Park], drainage is to [Yosemite Creek]." Candlestick Point PEA at 30. Thus, if groundwater and soil near Yosemite Creek was historically contaminated, at least some of this contamination likely would have reached Yosemite Creek.

II. ANALYSIS

A. Properties Near Yosemite Creek are Contaminated With Chemicals Identified as COCs at the Site.

Data from past studies show that soil and groundwater near Yosemite Creek are contaminated with a variety of chemicals. As discussed below, every COC identified by EPA at Yosemite Creek has been found in soil or groundwater samples from properties near Yosemite Creek.

1. 2005 Phase II Environmental Assessment, Yosemite Slough Wetlands Restoration.

In 2004, Northgate Environmental Management, Inc. conducted a Phase II environmental assessment of the area surrounding Yosemite Creek. *See* Phase II Report at 2. This assessment included a soil and groundwater investigation that "was to assess soil and groundwater quality to support the design and construction of a planned wetlands restoration at the [Park] Site." *Id*. at 1.

In the Phase II Report, on-site soil samples were grouped into categories including wetland layer soil samples, representing the 3-foot interval below the proposed wetland design surface and what would be cut soil samples, representing soil to be removed between the current ground surface and the proposed wetland design surface. *Id*. at 16. Thus, at present, prior to the creation of the Park, "cut soils" are surface soils down to the depth of the proposed surface according to the park plans (the exact depth depends upon the park design for each particular

location) and "wetland soils" are those at the next level, which will constitute the top three feet of soil when the park is constructed (again, the exact intervals of each location depends on the park design). For proposed not-to-exceed criteria, the Phase II Report used ERMs for all chemicals except nickel and selenium. *Id*. at 17. The ERMs used in the Phase II were identical to EPA's proposed ERMs for sediments at Yosemite Creek for all COCs except DDT. *See* EPA Action Memorandum at 5; Phase II Report at Table 1. For DDT, the Phase II Report used an ERM of 46.1 ug/kg and the EPA Action Memorandum used an ERM of 100 ug/kg. *Id*.

a. "Wetland Soils" Near Yosemite Creek.

In the planned wetland layer, the primary metals that exceed ERMs include lead (35 of 96 samples), zinc (19 of 66 samples), copper (14 of 90 samples) and nickel (21 of 92 samples). *Id*. at 17. Other chemicals also were found to exceed the ERMs, including mercury (5 of 93 samples). *Id.* The wetland soil sample results for the COCs at Yosemite Creek are summarized below; the locations of these samples are shown on the maps attached as Exhibit B (Heavy Metals) and Exhibit C (PCBs and Pesticides). The locations of samples that exceed the ERM for the specific COCs are marked by colored circles on the maps.

Wetland Soil Results (*see* Phase II Report at Tables 1, 3(a), 3(e) and 4(a)):

Analyte	No. of Samples	No. of Detections	ERM	No. of ERM Exceedances	Maximum Concentration Detected
Lead	96	96	218 mg/kg	35	29,000 mg/kg
Mercury	93	86	0.71 mg/kg	5	3 mg/kg
Zinc	66	66	410 mg/kg	19	16,000 mg/kg
Dieldrin	18	2	8 ug/kg*	2	54 ug/kg
Total Chlordanes	21	1	6 ug/kg*	1	27 ug/kg
Total DDT	18	3	46.1 ug/kg (Phase II Report) 100 ug/kg (EPA)	1 0	49 ug/kg
PCB (Total Aroclors)	24	11	180 ug/kg	3	25,000 ug/kg

* The ERMs for Dieldrin and total Chlordanes were not established in the Phase II Report. The ERMs for these chemicals are based on the ERMs in the EPA Action Memorandum. *See* EPA Action Memorandum at 5.

As can be seen in Exhibit B, the wetland soil results show that the heavy metals that are COCs at Yosemite Creek -- lead, mercury and zinc -- have been detected in multiple samples near Yosemite Creek, both north and south of the creek. Similarly, as can be seen in Exhibit C, the wetland soil results show that the other COCs -- PCBs, Dieldrin, Chlordane and DDT – also have been found in soil samples near Yosemite Creek. The locations of these samples containing PCBs and pesticides are located south of Yosemite Creek.

b. "Cut Soils" Near Yosemite Creek.

The Phase II Report also compared concentrations of chemicals in cut soils to the ERMs. *Id*. at 18. Chemicals that were found to exceed these ERMs included metals, PCBs, pesticides, PAHs and SVOCs. *Id*. The primary metals that exceeded the ERMs included lead (28 of 92 samples), zinc (14 of 88 samples), mercury (13 of 92 samples) and nickel (25 of 93 samples). *Id.* The cut soil sample results for the COCs at Yosemite Creek are summarized below; the locations of these samples are shown on the maps attached as Exhibit D (Heavy Metals) and Exhibit E (PCBs and Pesticides). The locations of samples that exceed the ERM for the specific COCs are marked by colored circles on the maps.

Cut Soil Results (*see* Phase II Report at Tables 1, 3(a), 3(e) and 4(b)):

Analyte	No. of Samples	No. of Detections	ERM	No. of ERM Exceedances	Maximum Concentration Detected
Lead	92	92	218 mg/kg	28	13,000 mg/kg
Mercury	92	90	0.71 mg/kg	13	11 mg/kg
Zinc	88	88	410 mg/kg	14	4,700 mg/kg
Dieldrin	n/a	n/a	8 ug/kg*	n/a	n/a
Total Chlordanes	39	1	6 ug/kg*	1	100 ug/kg
Total DDT	37	2	46.1 ug/kg (Phase II Report) 100 ug/kg (EPA)	2 2	240 ug/kg
PCB (Total Aroclors)	19	7	180 ug/kg	4	550 ug/kg

* The ERMs for Dieldrin and total Chlordanes were not established in the Phase II Report. The ERMs for these chemicals are based on the ERMs in the EPA Action Memorandum. *See* EPA Action Memorandum at 5.

Similar to the results for the wetland soil samples, the results from the cut soil samples show that heavy metals that are COCs at Yosemite Creek -- lead, mercury and zinc -- have been detected in multiple samples near Yosemite Creek. The locations of these samples are both north and south of Yosemite Creek. As can be seen in Exhibit E, the cut soil results show that, except for Dieldrin, the other COCs - PCBs, Chlordane and DDT - have also been found in soil samples near Yosemite Creek. The locations of these samples are primarily south of Yosemite Creek, but one soil sample containing Chlordane and DDT was located north of Yosemite Creek.

c. Groundwater Near Yosemite Creek.

For groundwater, the Phase II Report compared sample results to environmental screening levels ("ESLs") for protection of aquatic habitats where groundwater is not considered to be a potential drinking water source. *Id*. at 14. The groundwater samples showed dissolved metals above the ESLs for lead, zinc, barium, cobalt, and nickel. *Id*. at 14-15. The Phase II Report did not include a map of these sampling locations, so the exact location of these samples is unclear.

The Phase II Report also examined whether material used historically as fill in the area has contaminated groundwater. The Phase II Report concluded that groundwater at the site was not impacted by chemicals detected in the fill except in two areas: (1) lead, nickel, cobalt, and TEPH within a limited area of the northwest region of the proposed Park; and (2) TEPH at one location in the vicinity of a suspected sump in the northwest area of the proposed Park. *Id*. at 15.

1. <u>1990 Candlestick Point Preliminary Soil and Groundwater Investigation</u>.

The Candlestick Point PEA summarized past investigations including a preliminary soil and groundwater investigation of the Yosemite Creek area performed by HFA & Associates in March 1990 ("Preliminary Soil and Groundwater Investigation"). *See* Candlestick Point PEA at 40. The Preliminary Soil and Groundwater Investigation consisted of an area wide soil vapor survey, the drilling and sampling of 20 shallow boreholes, the installation and sampling of six groundwater monitoring wells, sediment sampling from Yosemite Creek, and limited surface water sampling. *Id.* at 40. The primary contaminants identified during this study were TRPH and heavy metals in the creek sediments and in soils located throughout the area. Lead concentrations exceeded the ERM of 218 mg/kg proposed by EPA at Yosemite Creek at five sample locations. *Id*. at Table 3.1. These soil sample locations are marked by red-colored circles on the map attached as Exhibit F. These locations appear to be consistent with the results for lead sampling in the Phase II Report; however, differences in the maps provided in the respective reports make an exact comparison difficult. *See id.* at Figure 8 (attached as Exhibit F).

The Preliminary Soil and Groundwater Investigation groundwater analysis showed lead concentrations at two of five sampling locations (four of seven total samples collected), including two samples that showed concentrations above the state drinking water level. *Id*. at 41, 49, Table 3.2. Mercury also was detected, though below the drinking water action level. *Id*. at 49, Table 3.2. These wells are marked by colored circles on the map attached as Exhibit F. All wells with samples that exceeded state drinking water levels were located within two blocks of Yosemite Creek. *Id*. at 41, Exhibit F. However, the Candlestick Point PEA notes that "[s]ince

groundwater beneath the [proposed Park] is in direct communication with the Bay, the metal constituents detected may be attributed to background levels. This is supported by the fact that the surface water sample collected from the spring that traverses the site did not contain any metals." *Id*. (emphasis added).

B. Historic Property Uses and Activities Near Yosemite Creek Reveal Other Possible Sources of COCs at the Site.

The area surrounding Yosemite Creek has a history of industrial land use that likely resulted in releases of chemicals to soil and groundwater. *See* Candlestick Point PEA at 1. The Candlestick Point PEA summarized the historic use of the area around Yosemite Creek and included a list of property owners/operators adjacent to, within and around the Candlestick Point SRA. *See* Candlestick Point PEA at 6, Attachment 5. These historic uses are shown on the map attached as Exhibit G.

Historic land uses near Yosemite Creek included an auto wrecking and salvage yard that operated on Ingalls Street between Underwood and Van Dyke Avenues. *Id*. at 13; Exhibit G. A salvage yard was also located between Hawes and Griffith Streets and Wallace and Underwood Avenues. *Id*. Possible contaminants at this site include petroleum hydrocarbons, lead and other metals and acid. *Id*. Other past property uses in the area included K&H Manufacturing, which operated a manufacturing equipment machine shop on Griffith Street between Underwood and Van Dyke Avenues. *Id*.

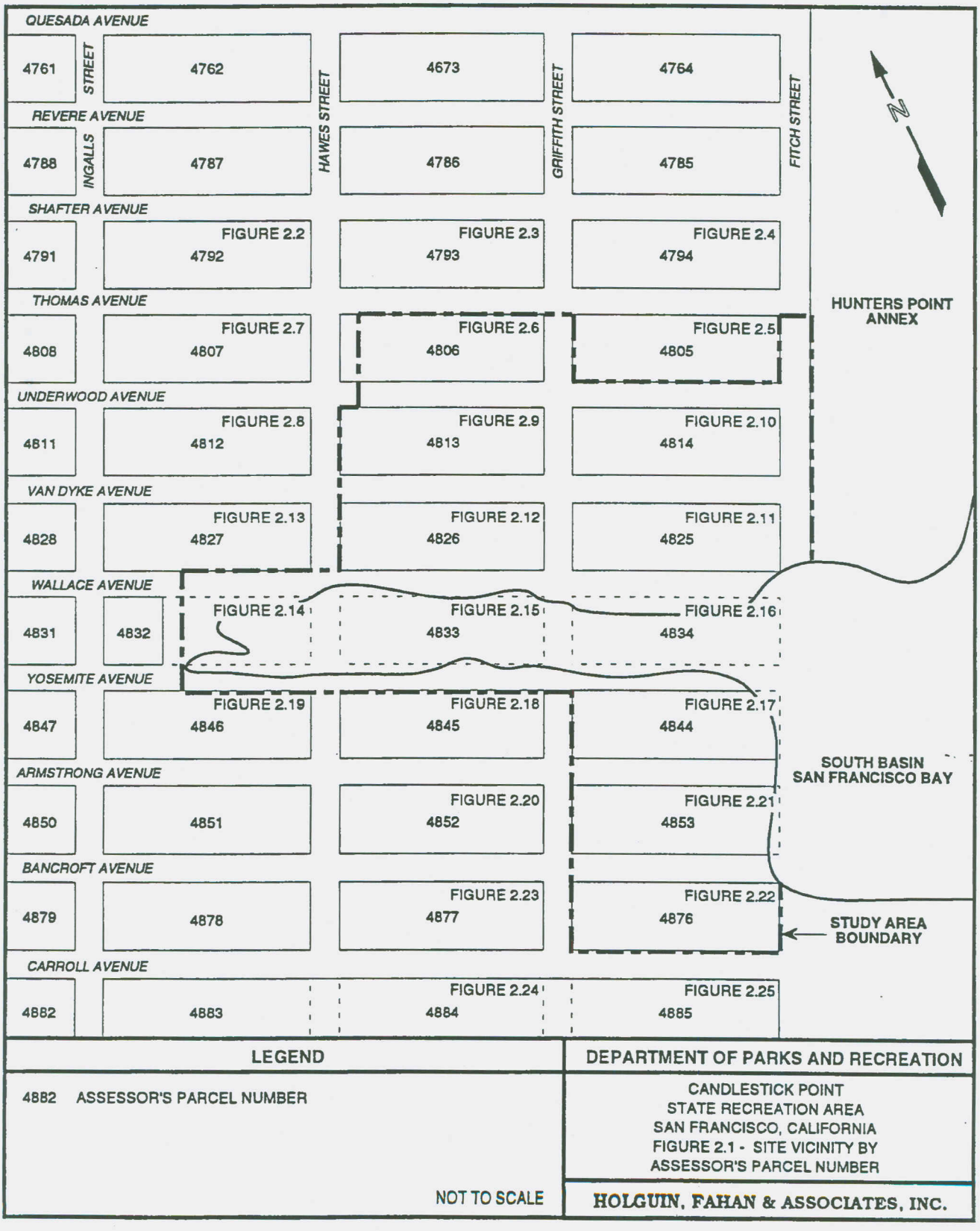
The Candlestick Point PEA also included a list of business licenses within the Candlestick Point SRA that were effective within five years of that report and property owners/operators adjacent to and within the Candlestick Point SRA. *Id*. at Attachment 5. The list of business licenses included an auto salvage yard located at 1200 Van Dyke Street and an auto repair shop located at 1270 Thomas Avenue. *Id*. The list of property owners included an auto salvage yard, an auto repair shop, a wrought iron works, and several properties described as "industrial use." *Id*. The locations of these businesses are also shown on the map attached as Exhibit G.

III. CONCLUSION

Past reports and studies indicate that the property around Yosemite Creek that is proposed for inclusion within the proposed Park contains soil and groundwater contaminated with a variety of chemicals including all of the COCs at Yosemite Creek. The property in this area also has a history of industrial use including an auto repair and salvage yard that could have contributed further to contamination at the Site. Based on this evidence, it is likely that contamination from these nearby properties reached Yosemite Creek through either groundwater migration or surface water runoff.

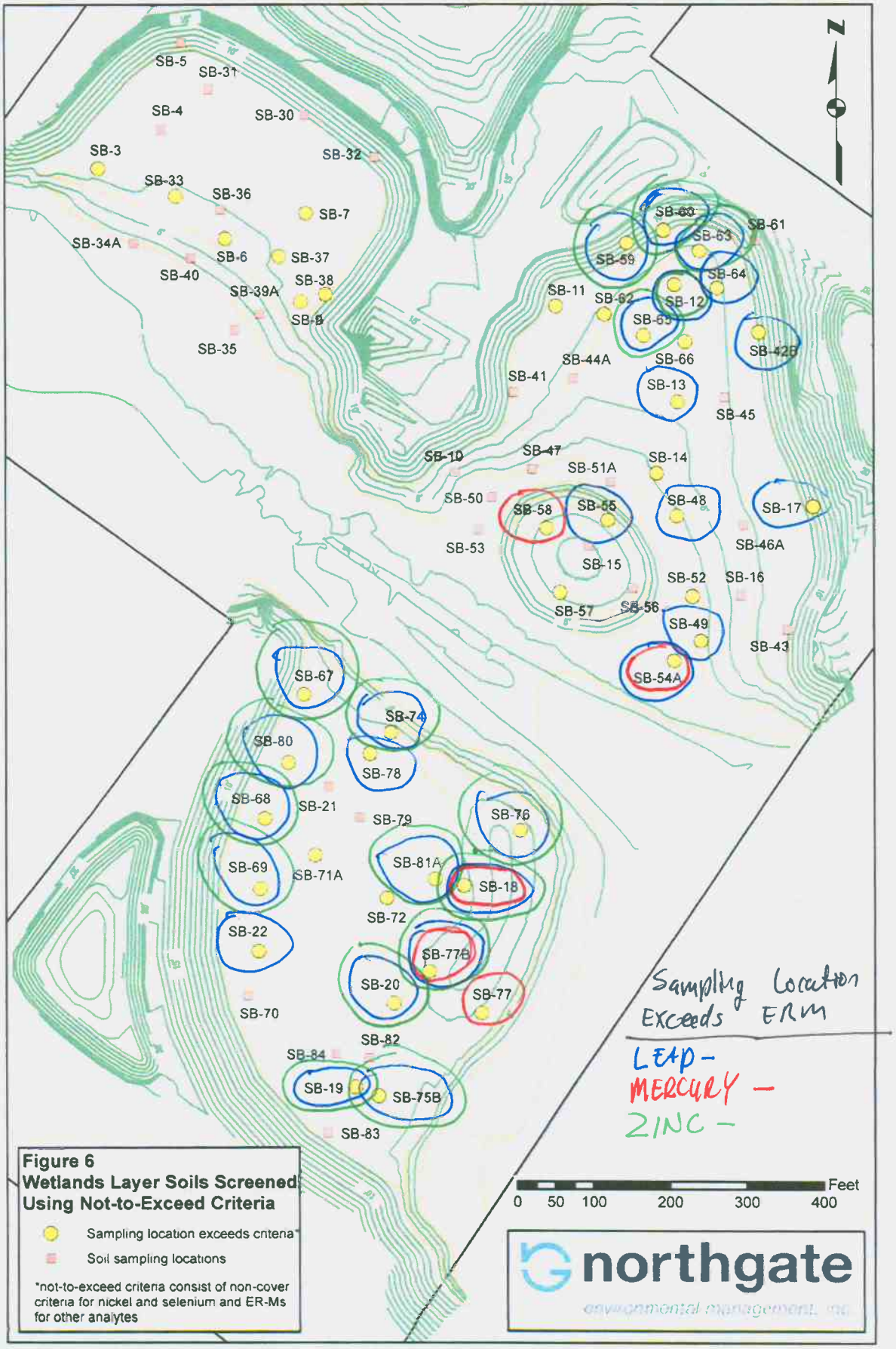
EXHIBIT A

Yosemite Slough Wetlands Restoration Area



Phase II Report : WETLAND SOILS EXHIBIT B

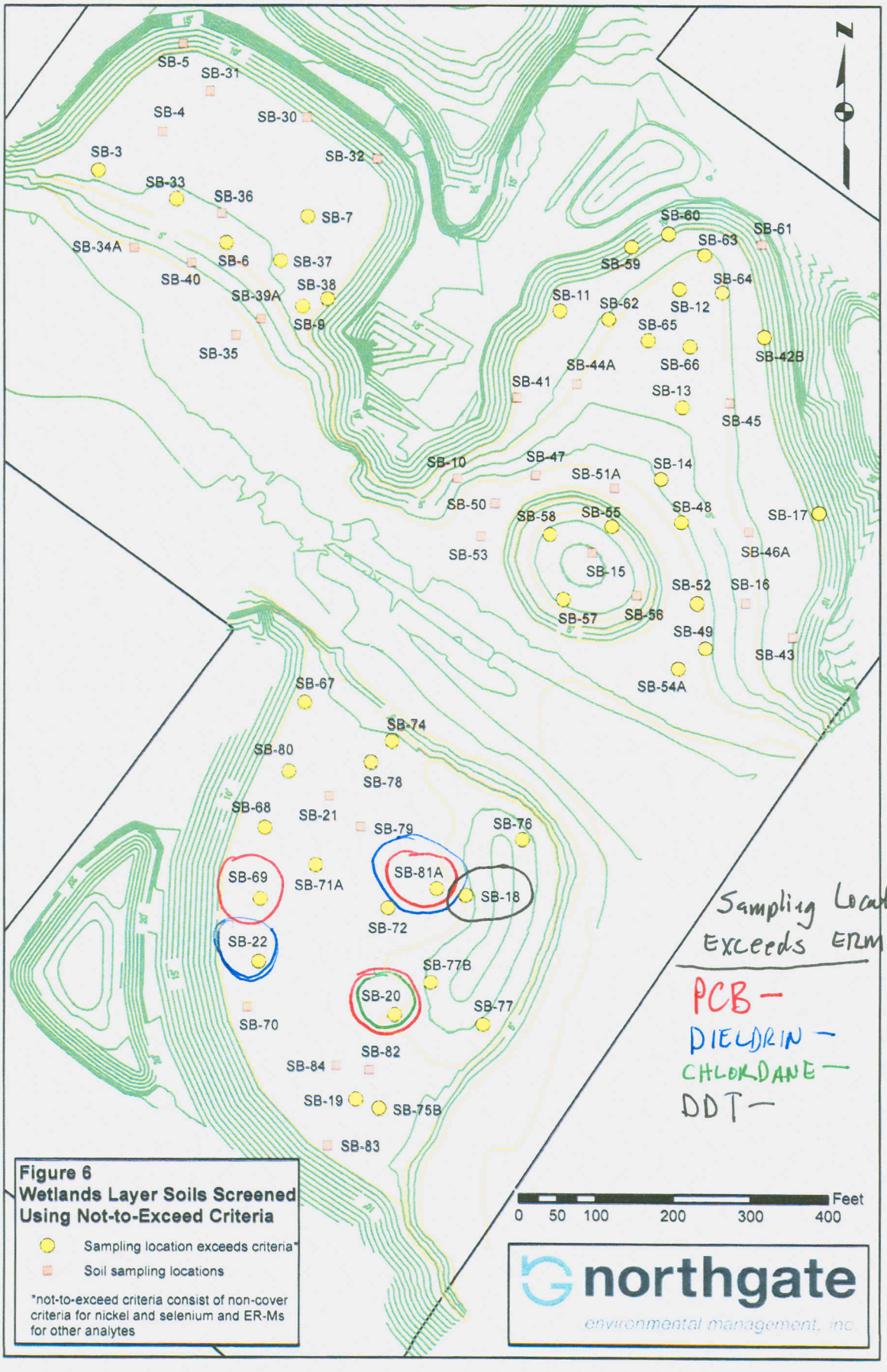
HEAVY METALS:



Phase II Report : WETLAND SOILS

EXHIBIT C

PCBs & PESTICIDES:



Phase II Report CUT SOILS Exhibit D

HEAVY METALS

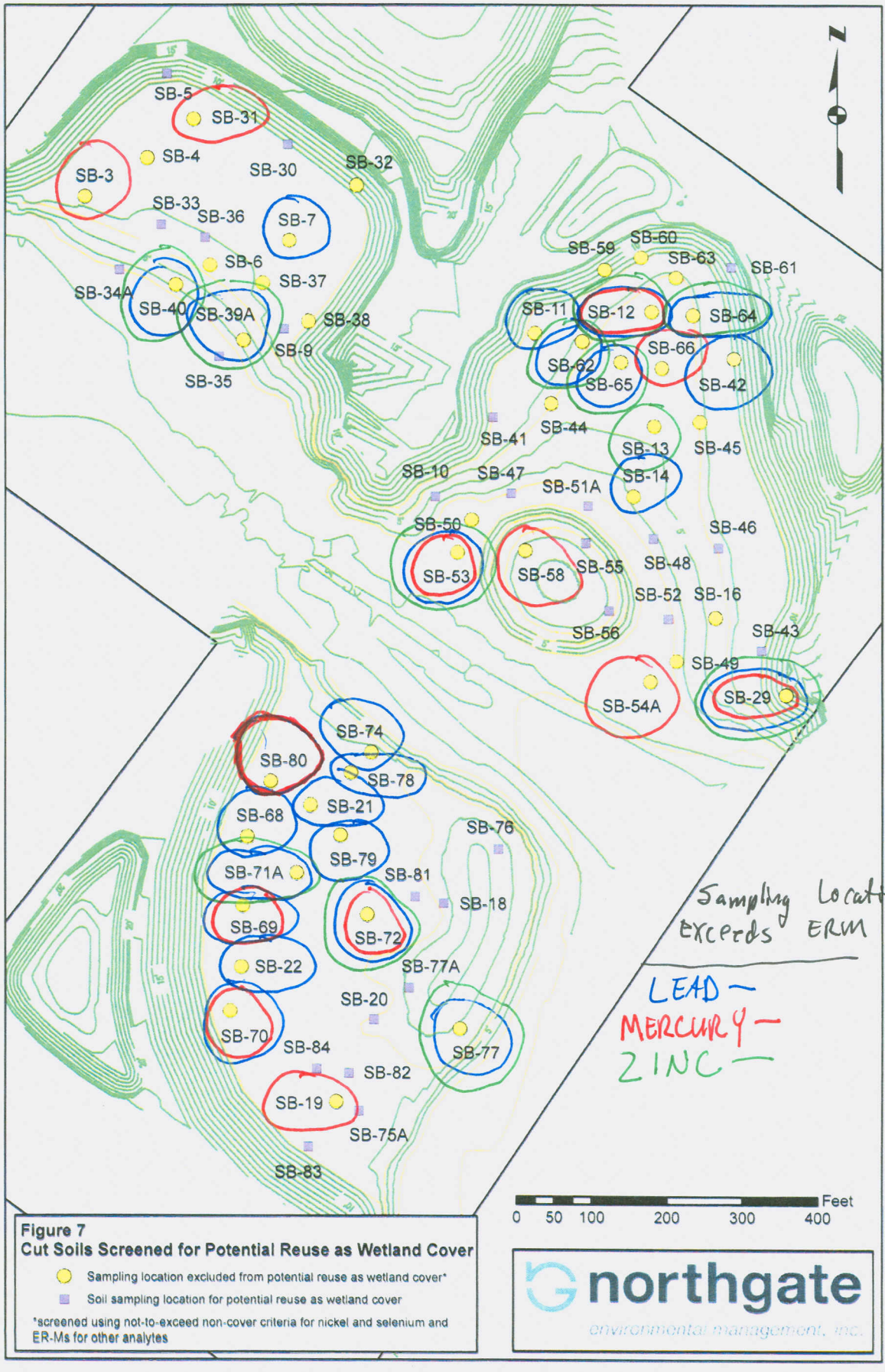


Figure 7
Cut Soils Screened for Potential Reuse as Wetland Cover

- Sampling location excluded from potential reuse as wetland cover*
- Soil sampling location for potential reuse as wetland cover

*screened using not-to-exceed non-cover criteria for nickel and selenium and ER-Ms for other analytes

northgate environmental management, inc.

Phase II Report — CUT SOILS — EXHIBIT E

PCBs & PESTICIDES:

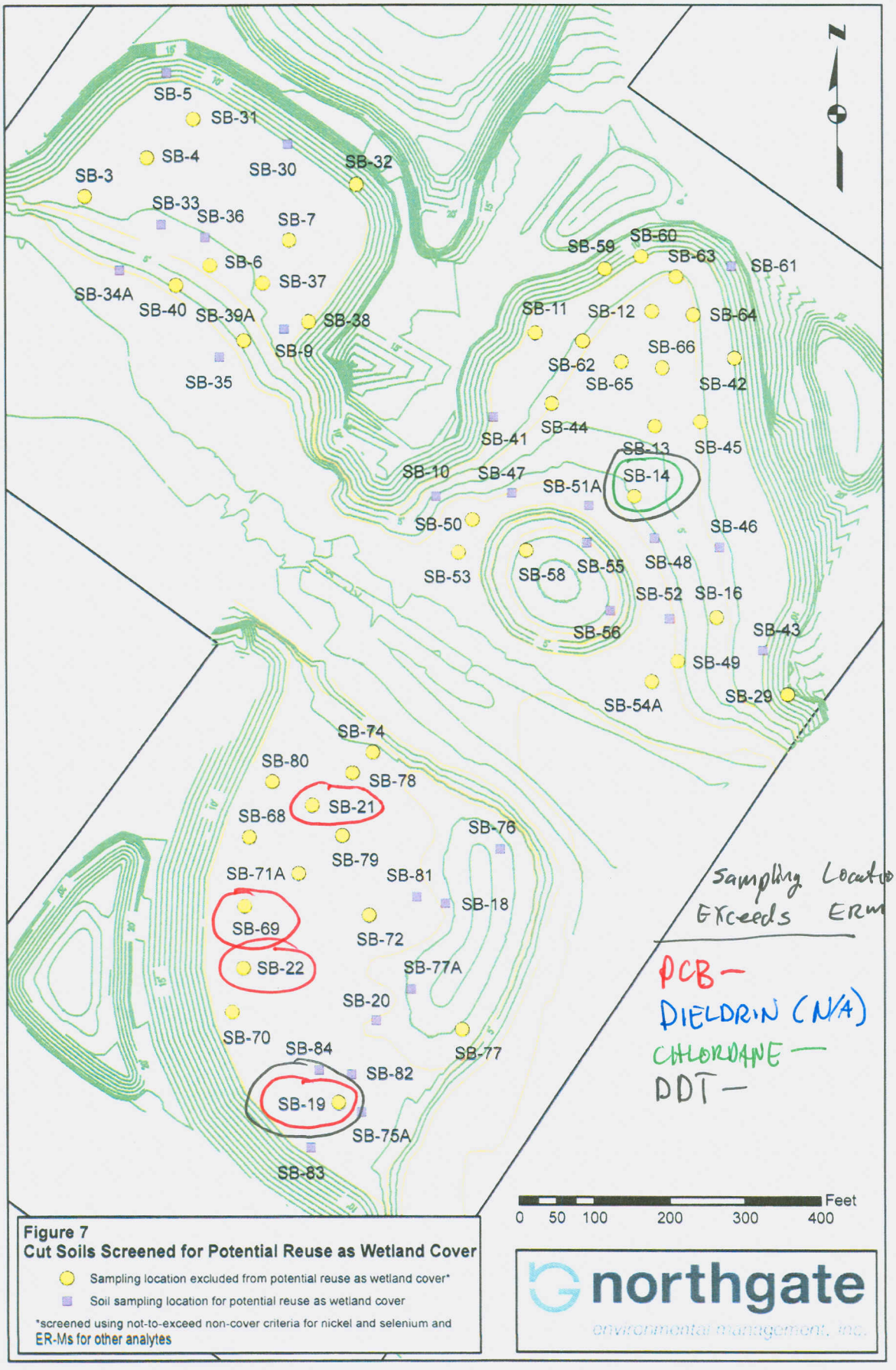


Figure 7
Cut Soils Screened for Potential Reuse as Wetland Cover

- Sampling location excluded from potential reuse as wetland cover*
- Soil sampling location for potential reuse as wetland cover

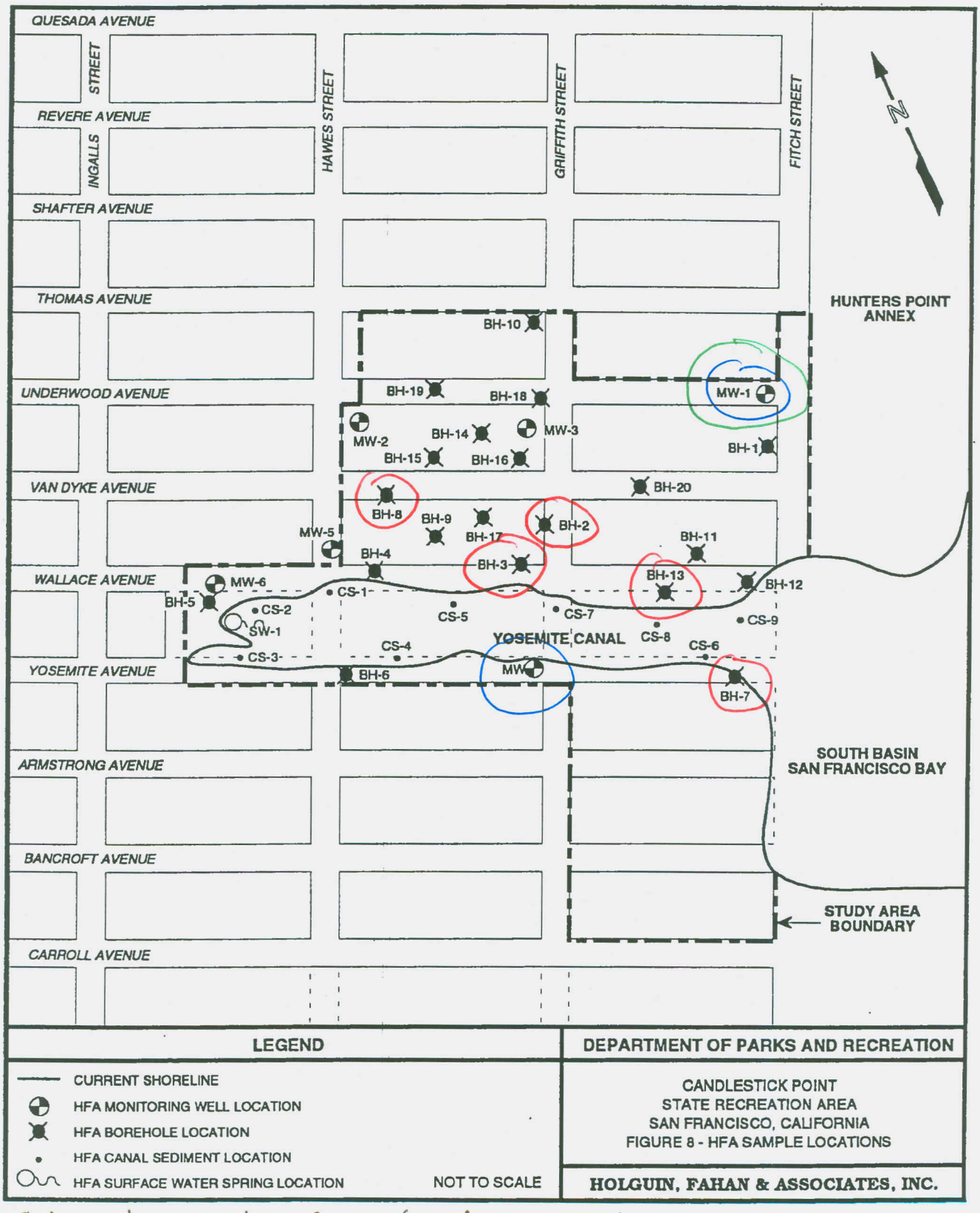
*screened using not-to-exceed non-cover criteria for nickel and selenium and ER-Ms for other analytes

northgate environmental management, inc.

Yosemite Creek:

Preliminary Soil and Groundwater Investigation (1990)

EXHIBIT F



Soil Sample Exceeds ERM:

Lead —

Groundwater Sample Exceeds Drinking Water Action Level:

Lead —

Mercury —

YOSEMITE CREEK:

EXHIBIT G

Historic Businesses and Land Uses

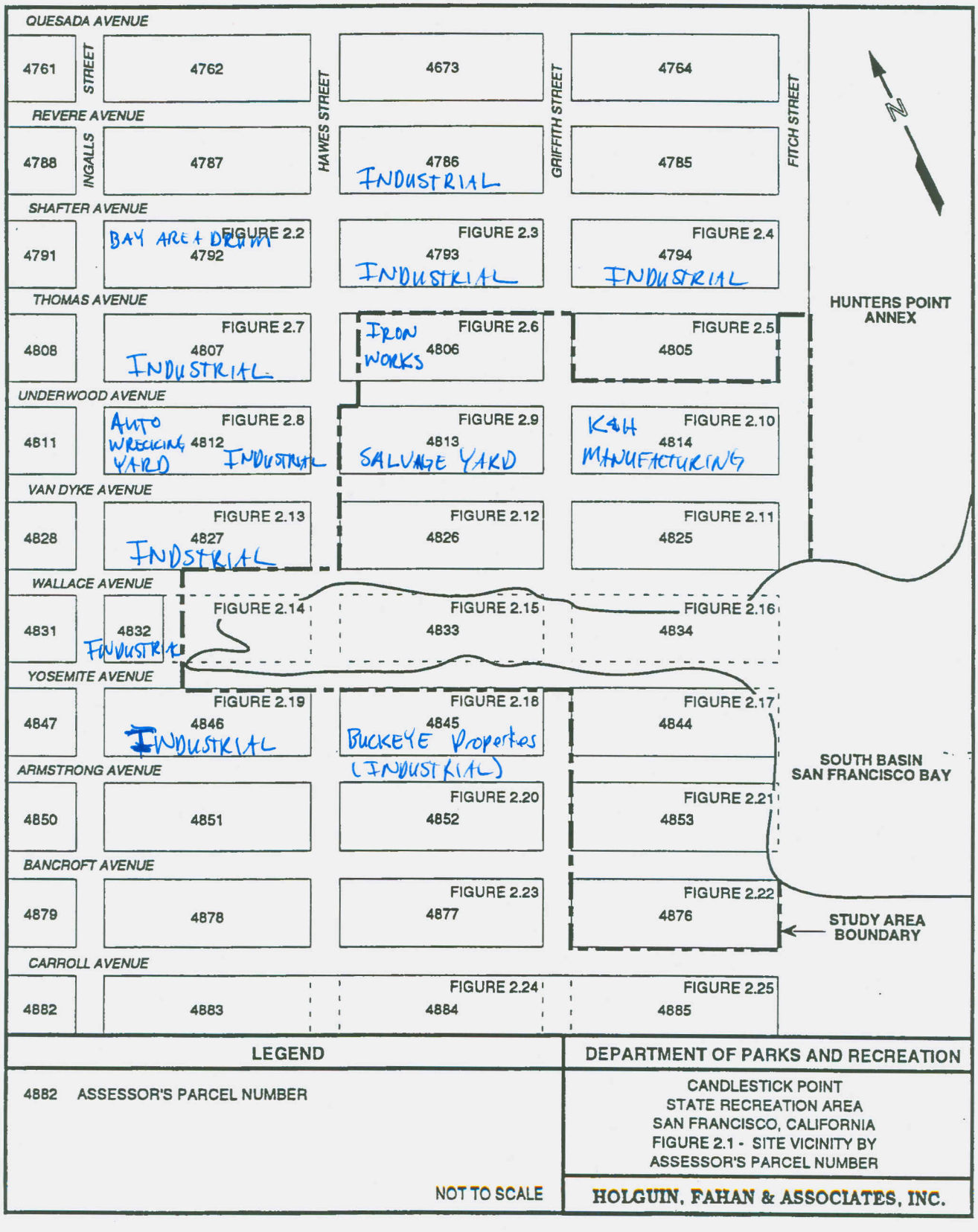
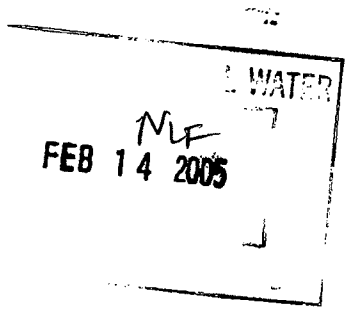


EXHIBIT C



Phase II Environmental Site Assessment

Yosemite Slough Wetlands Restoration

San Francisco, California

February 11, 2005

Prepared For:

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Romberg Tiburon Center
San Francisco State University

Noble Consultants

Lipton Environmental Group

ACKNOWLEDGEMENTS

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1.0 INTRODUCTION

This report summarizes the results of a Phase II environmental site assessment (Phase II ESA) conducted on behalf of the California State Parks Foundation by Northgate Environmental Management, Inc. ("Northgate") at Yosemite Slough, which lies within the Candlestick Park State Recreation Area in San Francisco, California ("the Site"; Figure 1). The purpose of the soil and groundwater investigations was to assess soil and groundwater quality to support the design and construction of a planned wetlands restoration at the Site. The Phase II soil and groundwater investigations were conducted in two stages. Stage 1 investigations were conducted in January 2004 and Stage 2 investigations were conducted September through October 2004.

The remainder of this report is organized as follows:

- Section 2.0 provides background information, including a site description.
- Section 3.0 describes the scope of the Phase II soil and groundwater investigations.
- Section 4.0 presents the results of soil and groundwater investigations
- Section 5.0 provides a discussion of the results and recommendations.

2.0 BACKGROUND

2.1 Site Description

The Site is located on the eastern shore of the San Francisco Peninsula within the Candlestick Point State Recreation Area (Figure 1) in the City and County of San Francisco. The Site consists of approximately 34 acres, and is bisected by the Yosemite Slough, a channel that extends from Ingalls Avenue at its northwest end to its outlet in San Francisco Bay. The northern portion of the Site is bounded on the northeast by Thomas Avenue and a corporation yard for the City of San Francisco; on the northwest by Hawes Street and a railroad right-of-way; and on the southeast by Hunters Point Naval Shipyard. The southern portion of the Site is bordered on the southwest by Yosemite Avenue and Carroll Avenue, and on the southeast by San Francisco Bay and Candlestick Park. For the purpose of discussions presented in this report, the Site is subdivided into three sub-areas (northwest, northeast, and southeast). The sub-area boundaries are defined by Yosemite Slough, which runs northwest to southeast across the Site, and by the extension of Griffith Street, which bisects the northern portion of the Site. A combined sewer overflow (CSO) pipeline runs underneath Griffith Street (see Figures 2 and 3).

The Site was historically part of the tidal marshes and mudflats of San Francisco Bay. Fill was placed over the site and surrounding areas in the 1950s and 1960s to provide space for industrial and residential development, and Yosemite Slough consists of a remnant channel within the original tidal marsh. The slough is approximately 1,700 feet long and measures approximately 200 to 300 feet wide. It is bounded by relatively steep banks, approximately 4 to 8 feet in height. The City and County of San Francisco is evaluating chemical concentrations in sediments in the slough and whether there is a need to remediate the sediments.

Water levels in the slough are influenced by tidal action in San Francisco Bay. Tidal elevations in Yosemite Slough (relative to North American Vertical Datum [NAVD] 1988) are as follows:

Tide Level	Elevation (feet, NAVD 1988)
Mean Higher High Water (MHHW)	6.49
Mean High Water (MHW)	5.85
Mean Tide Level (MTL)	3.33
Mean Low Water (MLW)	0.83
Mean Lower Low Water (MLLW)	-0.34

2.2 Current and Proposed Land Use

The objective of the restoration planning effort for the Site is to restore approximately 12 acres of wetland habitat on park property adjoining Yosemite Slough. The restoration plan calls for areas of high and low marsh, with islands for bird nesting habitat in the northeast and southeast sub-areas. The proposed wetland restoration design is represented on Figures 2 and 3, which show the tidal elevation contours for mean low water (0.83 feet NAVD), mean tide level (3.33 feet NAVD), mean high water (5.85 feet NAVD), and mean higher high water (6.49 feet NAVD). The proposed grading contours are shown on Figures 4 through 9. Under the proposed restoration plan, the uplands area will be used as a shoreline park with paved walking trails, a picnic area, and a building with an interpretive center (recreational land use).

Currently, the northern area of the Site consists of vacant land to the northwest of the extension of Griffith Street. A small cluster of buildings currently occupied by a cabinetmaker is located southeast of the extension of Griffith Street. A large unoccupied corrugated metal building, reportedly used for diesel engine manufacturing, is located just east of the cabinetmaker's shop, and a suspected waste oil sump is located under a concrete pad between the cabinetmaker's shop and the unoccupied building. The suspected sump is no longer in use, and may have been used by the former occupant of the metal building. The southern area consists primarily of vacant land, with a small corporation yard for the State Department of Parks and Recreation located at the corner of Carroll Avenue and Griffith Street. The surrounding area generally consists of a mixture of residential and industrial or commercial development.

A meeting was held on April 27, 2004 with representatives of the Regional Water Quality Control Board (RWQCB), Northgate, Wetlands Research Associates (WRA), and Romberg-Tiburon Center (RTC) to review the Stage 1 investigation results and discuss modifications to the proposed restoration design. The modifications to the restoration design proposed during the April 27, 2004 meeting are based on the distribution of chemicals in fill materials as reflected in the Stage 1 data, and are intended to limit potential exposures of wetland species and park users to chemicals, reduce the amount of soil to be transported off-site, and allow reuse of excavated soils.

As discussed with the RWQCB and approved during the April 27, 2004, meeting, the modified restoration design proposes to leave in-place chemically-affected fill soils below the surface of the modified restoration design, provided the chemicals of concern are not migrating (based on groundwater sampling and analysis) and chemical concentrations within the cover soil throughout the restoration area do not exceed appropriate criteria, thereby limiting potential exposure pathways and risks to the environment.

Table 4a
Statistical Summary of Analyte Detections in Wetland Layer Soil Samples Screened Using Proposed Not-to-Exceed Wetland Criteria *
Yosemite Slough, San Francisco, California

Analytical Group	Analyte	No. of Samples	No. of Detections	No. of Not-to-Exceed Wetland Criteria Exceedances *	Maximum Detected Concentration	Units
METAL	Antimony	33	6	ne	32	mg/kg
METAL	Arsenic	43	41	0	51	mg/kg
METAL	Barium	33	33	ne	1200	mg/kg
METAL	Beryllium	33	26	ne	0.7	mg/kg
METAL	Cadmium	94	50	4	16	mg/kg
METAL	Chromium	74	74	2	450	mg/kg
METAL	Cobalt	33	33	ne	120	mg/kg
METAL	Copper	90	90	14	15000	mg/kg
METAL	Hexavalent Chromium	7	1	ne	0.072	mg/kg
METAL	Lead	96	96	35	29000	mg/kg
METAL	Mercury	93	86	5	3	mg/kg
METAL	Molybdenum	33	9	ne	8.4	mg/kg
METAL	Nickel	92	92	21	4100	mg/kg
METAL	Selenium	51	14	6	11	mg/kg
METAL	Silver	35	4	0	0.73	mg/kg
METAL	Thallium	33	18	ne	1.9	mg/kg
METAL	Vanadium	33	33	ne	88	mg/kg
METAL	Zinc	66	66	19	16000	mg/kg
PAH	Acenaphthene	24	4	0	76	ug/kg
PAH	Acenaphthylene	24	4	0	130	ug/kg
PAH	Anthracene	24	10	0	410	ug/kg
PAH	Benzo(a)anthracene	24	14	1	4900	ug/kg
PAH	Benzo(a)pyrene	24	16	1	2000	ug/kg
PAH	Benzo(b)fluoranthene	24	17	ne	4300	ug/kg
PAH	Benzo(g,h,i)perylene	24	11	ne	1600	ug/kg
PAH	Benzo(k)fluoranthene	24	13	ne	2600	ug/kg
PAH	Chrysene	24	18	1	5500	ug/kg
PAH	Dibenz(a,h)anthracene	24	6	1	790	ug/kg
PAH	Fluoranthene	24	16	1	8700	ug/kg
PAH	Fluorene	24	7	0	140	ug/kg
PAH	Indeno(1,2,3-cd)pyrene	24	9	ne	1700	ug/kg
PAH	Naphthalene	24	7	0	420	ug/kg
PAH	Phenanthrene	24	16	1	960	ug/kg
PAH	Pyrene	24	20	0	6500	ug/kg
PAH	Total High Mol Wt PAHs	24	20	1	39000	ug/kg
PAH	Total Low Mol Wt PAHs	24	16	0	1400	ug/kg
PAH	Total PAHs	0	24	0	40400	ug/kg
PCB	Aroclor-1242	24	1	ne	11000	ug/kg
PCB	Aroclor-1248	24	1	ne	1000	ug/kg

Table 4a
Statistical Summary of Analyte Detections in Wetland Layer Soil Samples Screened Using Proposed Not-to-Exceed Wetland Criteria *
Yosemite Slough, San Francisco, California

Analytical Group	Analyte	No. of Samples	No. of Detections	No. of Not-to-Exceed Wetland Criteria Exceedances *	Maximum Detected Concentration	Units
PCB	Aroclor-1254	24	6	ne	860	ug/kg
PCB	Aroclor-1260	24	10	ne	290	ug/kg
PCB	Total Aroclors	24	11	3	25000	ug/kg
PEST	4,4'-DDE	18	3	2	49	ug/kg
PEST	alpha-Chlordane	18	1	ne	27	ug/kg
PEST	beta-BHC	18	1	ne	55	ug/kg
PEST	Dieldrin	18	2	ne	54	ug/kg
PEST	Heptachlor epoxide	18	1	ne	25	ug/kg
PEST	Methoxychlor	18	1	ne	40	ug/kg
PEST	Total Chlordanes	21	1	ne	27	ug/kg
PEST	Total DDTs	18	3	1	49	ug/kg
SVOC	Benzo(a)pyrene	3	1	0	84	ug/kg
TPH	Diesel C10-C24	33	32	ne	2200	mg/kg
TPH	Hydraulic Fluid, C12-40	33	31	ne	5400	mg/kg
TPH	Motor Oil C24-C36	33	31	ne	4300	mg/kg
VOC	1,2,4-Trimethylbenzene	1	1	ne	690	ug/kg
VOC	m,p-Xylenes	1	1	ne	1100	ug/kg

Notes:

* Proposed Not-to-Exceed criteria for the wetland layer consist of ER-Ms for most chemicals and Wetland Non-Cover criteria for nickel and selenium.

ER-M = Effects Range-Median. Long, E. R., D. D. MacDonald, S. L. Smith, and F. D. Calder. 1995. Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. Environ. Manage. 19(1):81-97.

Wetland Noncover Criteria from RWQCB, 1992, Interim Sediment Screening and Testing Requirements for Wetland Creation and Upland Beneficial Reuse.

METAL = metals group analyses

PAH = polyaromatic hydrocarbon group analyses

PCB = polychlorinated biphenyl group analyses

SVOC = semi-volatile organic compound group analyses

TPH = total petroleum hydrocarbon group analyses

VOC = volatile organic compound group analyses

mg/kg = milligrams per kilogram

ne = not established

Table 4b
Statistical Summary of Analyte Detections in Cut Soil Samples
Yosemite Slough, San Francisco, California

Analytical Group	Analyte	No. of Samples	No. of Detections	No. of Not-to-Exceed Wetland Criteria Exceedances *	No. of Site-Specific Ambient Exceedances (Uplands)	No. of Residential ESL Exceedances	No. of Commercial/ Industrial ESL Exceedances	Maximum Detected Concentration	Units
METAL	Antimony	29	6	ne	ne	3	2	150	mg/kg
METAL	Arsenic	84	84	0	2	24	24	21	mg/kg
METAL	Barium	29	29	ne	ne	1	0	1,100	mg/kg
METAL	Beryllium	29	23	ne	ne	0	0	0.62	mg/kg
METAL	Cadmium	91	57	1	ne	13	1	14	mg/kg
METAL	Chromium	87	87	0	21	46	46	340	mg/kg
METAL	Cobalt	29	29	ne	ne	1	1	99	mg/kg
METAL	Copper	91	91	6	ne	1	0	830	mg/kg
METAL	Hexavalent Chromium	7	2	ne	ne	0	0	0.16	mg/kg
METAL	Lead	92	92	28	ne	25	9	13,000	mg/kg
METAL	Mercury	92	90	13	ne	2	0	11	mg/kg
METAL	Molybdenum	29	4	ne	ne	0	0	7.2	mg/kg
METAL	Nickel	93	93	25	ne	15	6	2,900	mg/kg
METAL	Selenium	88	32	2	ne	0	0	2.5	mg/kg
METAL	Silver	84	8	1	ne	0	0	7	mg/kg
METAL	Thallium	29	16	ne	ne	1	0	1.3	mg/kg
METAL	Vanadium	29	29	ne	ne	0	0	82	mg/kg
METAL	Zinc	88	88	14	ne	1	0	4,700	mg/kg
PAH	Acenaphthene	44	7	1	ne	0	0	4,600	ug/kg
PAH	Acenaphthylene	44	9	1	ne	0	0	240	ug/kg
PAH	Anthracene	44	12	0	ne	0	0	2,000	ug/kg
PAH	Benzo(a)anthracene	44	22	1	ne	5	1	2,000	ug/kg
PAH	Benzo(a)pyrene	44	26	0	ne	17	8	1,500	ug/kg
PAH	Benzo(b)fluoranthene	44	29	ne	ne	4	1	1,800	ug/kg
PAH	Benzo(g,h,i)perylene	44	22	ne	ne	0	0	850	ug/kg
PAH	Benzo(k)fluoranthene	44	24	ne	ne	2	0	820	ug/kg
PAH	Chrysene	44	26	0	ne	0	0	2,200	ug/kg
PAH	Dibenz(a,h)anthracene	44	12	0	ne	2	0	160	ug/kg
PAH	Fluoranthene	44	24	0	ne	0	0	3,300	ug/kg
PAH	Fluorene	44	9	1	ne	0	0	4,900	ug/kg
PAH	Indeno(1,2,3-cd)pyrene	44	18	ne	ne	1	0	640	ug/kg
PAH	Naphthalene	44	9	1	ne	1	0	3,800	ug/kg
PAH	Phenanthrene	44	24	1	ne	0	0	8,600	ug/kg
PAH	Pyrene	44	30	1	ne	0	0	2,900	ug/kg
PAH	Total High Mol Wt PAHs	44	31	3	ne	ne	ne	910,000	ug/kg
PAH	Total Low Mol Wt PAHs	44	25	2	ne	ne	ne	20,000	ug/kg
PAH	Total PAHs	0	44	1	ne	ne	ne	930,000	ug/kg
PCB	Aroclor-1254	19	4	ne	ne	1	0	390	ug/kg
PCB	Aroclor-1260	19	7	ne	ne	1	0	230	ug/kg
PCB	Total Aroclors	19	7	4	ne	3	0	1,100	ug/kg
PEST	4,4'-DDD	37	1	ne	ne	0	0	130	ug/kg
PEST	4,4'-DDT	37	1	ne	ne	0	0	240	ug/kg
PEST	Endrin	37	1	ne	ne	0	0	200	ug/kg
PEST	gamma-Chlordane	37	1	ne	ne	0	0	100	ug/kg
PEST	Heptachlor epoxide	37	1	ne	ne	0	0	27	ug/kg

Table 4b
Statistical Summary of Analyte Detections in Cut Soil Samples
Yosemite Slough, San Francisco, California

Analytical Group	Analyte	No. of Samples	No. of Detections	No. of Not-to-Exceed Wetland Criteria Exceedances *	No. of Site-Specific Ambient Exceedances (Uplands)	No. of Residential ESL Exceedances	No. of Commercial/ Industrial ESL Exceedances	Maximum Detected Concentration	Units
PEST	Total Chlordanes	39	1	ne	ne	0	0	100	ug/kg
PEST	Total DDTs	37	2	2	ne	0	0	240	ug/kg
SVOC	Acenaphthene	16	1	1	ne	0	0	31,000	ug/kg
SVOC	Acenaphthylene	16	1	1	ne	0	0	880	ug/kg
SVOC	Anthracene	16	1	1	ne	0	0	140,000	ug/kg
SVOC	Benzo(a)anthracene	16	2	1	ne	1	1	100,000	ug/kg
SVOC	Benzo(a)pyrene	16	2	1	ne	2	1	20,000	ug/kg
SVOC	Benzo(b)fluoranthene	16	5	ne	ne	2	2	30,000	ug/kg
SVOC	Benzo(g,h,i)perylene	16	2	ne	ne	0	0	7,700	ug/kg
SVOC	Benzo(k)fluoranthene	16	2	ne	ne	1	1	17,000	ug/kg
SVOC	bis(2-Ethylhexyl)phthalate	16	1	ne	ne	0	0	690	ug/kg
SVOC	Chrysene	16	3	1	ne	1	1	87,000	ug/kg
SVOC	Dibenzofuran	16	1	ne	ne	ne	ne	10,000	ug/kg
SVOC	Fluoranthene	16	3	1	ne	0	0	290,000	ug/kg
SVOC	Fluorene	16	1	1	ne	0	0	47,000	ug/kg
SVOC	Indeno(1,2,3-cd)pyrene	16	2	ne	ne	1	1	8,200	ug/kg
SVOC	Phenanthrene	16	2	1	ne	0	0	320,000	ug/kg
SVOC	Pyrene	16	5	1	ne	0	0	350,000	ug/kg
TPH	Diesel C10-C24	29	29	ne	ne	3	0	840	mg/kg
TPH	Hydraulic Fluid, C12-40	29	29	ne	ne	9	0	5,700	mg/kg
TPH	Motor Oil C24-C36	29	29	ne	ne	10	0	5,200	mg/kg

Notes:

* Proposed Not-to-Exceed criteria for the wetland layer consist of ER-Ms for most chemicals and Wetland Non-Cover criteria for nickel and selenium.

ER-M = Effects Range-Median. Long, E. R., D. D. MacDonald, S. L. Smith, and F. D. Calder. 1995. Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. Environ. Manage. 19(1):81-97.

Wetland Noncover Criteria from RWQCB, 1992, Interim Sediment Screening Criteria and Testing Requirements for Wetland Creation and Upland Beneficial Reuse.

Site-Specific Upland Ambient = 99th percentile value for Cut Soils. See Appendix A for additional description.

Residential ESL = Environmental Screening Level for Direct Exposure (Residential Scenario). RWQCB, 2004, Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater. Volume 2, Appendix 1, Table B-1. Interim Final: July 2003, updated February 4, 2004 and September 24, 2004.

Commercial/Industrial ESL = Environmental Screening Level for Direct Exposure (Commercial/Industrial Scenario). RWQCB, 2004, Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater. Volume 2, Appendix 1, Table B-2. Interim Final: July 2003, updated February 4, 2004 and September 24, 2004.

METAL = metals group analyses

PAH = polyaromatic hydrocarbon group analyses

PCB = polychlorinated biphenyl group analyses

SVOC = semi-volatile organic compound group analyses

TPH = total petroleum hydrocarbon group analyses

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

ne = not established

Table 5
Statistical Summary of Analyte Detections in Wetland Layer Soil Samples
After Removing Samples Exceeding Proposed Not-to-Exceed Wetland Criteria [1]
Yosemite Slough, San Francisco, California

Analytical Group	Analyte	No. of Samples	No. of Detections	Maximum Detected Concentration	Mean Concentration [1]	95% UCL [2]	SF Bay Sediment Ambient	Proposed Not-to-Exceed Wetland Criteria [3]	Units
	Arsenic	11	11	12	4.8	7.2	15.3	70	mg/kg
METAL	Barium	8	8	280	nc	nc	ne	ne	mg/kg
METAL	Beryllium	8	8	0.7	nc	nc	ne	ne	mg/kg
METAL	Cadmium	28	11	1	0.28	0.47	0.33	9.6	mg/kg
METAL	Chromium	24	24	170	44	54	112	370	mg/kg
METAL	Cobalt	8	8	18	nc	nc	ne	ne	mg/kg
METAL	Copper	25	25	230	62	86	68.1	270	mg/kg
METAL	Lead	30	30	170	43	61	43.2	218	mg/kg
METAL	Mercury	33	26	0.71	0.18	0.26	0.43	0.71	mg/kg
METAL	Molybdenum	8	1	1.7	nc	nc	ne	ne	mg/kg
METAL	Nickel	32	32	180	51	61	112	200	mg/kg
METAL	Selenium	11	2	0.92	0.22	0.54	0.64	1.4	mg/kg
METAL	Thallium	8	3	1.2	nc	nc	ne	ne	mg/kg
METAL	Vanadium	8	8	66	nc	nc	ne	ne	mg/kg
METAL	Zinc	16	16	400	118	172	158	410	mg/kg
PAH	Acenaphthylene	5	1	9.1	nc	nc	26.6	640	ug/kg
PAH	Anthracene	5	1	24	nc	nc	88	1,100	ug/kg
PAH	Benzo(a)anthracene	5	2	110	nc	nc	244	1,600	ug/kg
PAH	Benzo(a)pyrene	5	2	270	nc	nc	412	1,600	ug/kg
PAH	Benzo(b)fluoranthene	5	2	260	nc	nc	371	ne	ug/kg
PAH	Benzo(g,h,i)perylene	5	2	110	nc	nc	310	ne	ug/kg
PAH	Benzo(k)fluoranthene	5	2	190	nc	nc	258	ne	ug/kg
PAH	Chrysene	5	3	160	nc	nc	289	2,800	ug/kg
PAH	Dibenz(a,h)anthracene	5	2	19	nc	nc	33	260	ug/kg
PAH	Fluoranthene	5	2	350	nc	nc	514	5,100	ug/kg
PAH	Indeno(1,2,3-cd)pyrene	5	2	90	nc	nc	382	ne	ug/kg
PAH	Phenanthrene	5	2	230	nc	nc	237	1,500	ug/kg
PAH	Pyrene	5	3	810	nc	nc	665	2,600	ug/kg
PAH	Total High Mol Wt PAHs	5	3	2,400	nc	nc	3,060	9,600	ug/kg
PAH	Total Low Mol Wt PAHs	5	2	260	nc	nc	434	3,160	ug/kg
PAH	Total PAHs	0	5	2,660	nc	nc	3,390	44,792	ug/kg
PCB	Aroclor-1254	7	1	36	nc	nc	ne	ne	ug/kg
PCB	Aroclor-1260	7	1	12	nc	nc	ne	ne	ug/kg
PCB	Total Aroclors	7	1	48	nc	nc	15	180	ug/kg
TPH	Diesel C10-C24	8	7	2,200	nc	nc	ne	ne	mg/kg
TPH	Hydraulic Fluid, C12-40	8	6	5,400	nc	nc	ne	ne	mg/kg
TPH	Motor Oil C24-C36	8	6	4,300	nc	nc	ne	ne	mg/kg

Notes:

[1] Mean value based on 1/2 detection limit for non-detects.

[2] 95% upper confidence limit value calculated using ProUCL software and based on 1/2 detection limit for non-detects.

Table 5
Statistical Summary of Analyte Detections in Wetland Layer Soil Samples After Removing Samples Exceeding Proposed Not-to-Exceed Wetland Criteria [1]
Yosemite Slough, San Francisco, California

Analytical Group	Analyte	No. of Samples	No. of Detections	Maximum Detected Concentration	Mean Concentration [1]	95% UCL [2]	SF Bay Sediment Ambient	Proposed Not-to-Exceed Wetland Criteria [3]	Units

[3] Proposed Not-to-Exceed criteria for the wetland layer consist of ER-Ms for most chemicals and Wetland Non-Cover criteria for nickel and selenium.

SF Bay Sediment Ambient = Ambient concentrations for San Francisco Bay sediments. RWQCB, 1998, Staff Report: Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediments. May.

ER-M = Effects Range-Median. Long, E. R., D. D. MacDonald, S. L. Smith, and F. D. Calder. 1995. Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. Environ. Manage. 19(1):81-97.

Wetland Noncover = Sediment screening criteria for noncover wetlands creation. RWQCB. 1992. Interim Sediment Screening Criteria and Testing Requirements for Wetland Creation and Upland Beneficial Reuse. Interim Final, December.

METAL = metals group analyses

PAH = polyaromatic hydrocarbon group analyses

PCB = polychlorinated biphenyl group analyses

SVOC = semi-volatile organic compound group analyses

TPH = total petroleum hydrocarbon group analyses

VOC = volatile organic compound group analyses

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

nc = not calculated due to data set less than 10 points

ne = not established

EXHIBIT D

Remedial Investigation Report
Former Bay Area Drum Site
1212 Thomas Avenue
San Francisco, California

Prepared for

The Technical Committee of the
Bay Area Drum Facility *Ad Hoc* PRP Group

HLA Project Nos. 34721 760
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EXECUTIVE SUMMARY

This report completes the Remedial Investigation for the Former Bay Area Drum Site (the Site), which consists of the former Bay Area Drum Facility at 1212 Thomas Avenue, San Francisco, California (the Facility), and certain surrounding areas. Harding Lawson Associates (HLA) prepared this remedial investigation report on behalf of the Technical Committee of the Bay Area Drum Facility *Ad Hoc* PRP Group (the Group). This report meets the requirements of Section 5.7 of the Consent Order, Docket Number HSA 95/96-060, *In the Matter of Bay Area Drum Site*, issued by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) on March 14, 1996 (the Order).

Background and Data Gaps

When the Group began its work, much of the information needed to complete the remedial investigation had already been collected. To supplement these data, the Group began field investigations before the Order was completed, by collecting soil-vapor flux samples that represent the ground-surface concentrations of volatile chemicals moving upward from the underlying soil and/or groundwater. Using existing information, and the soil-vapor flux measurements collected by the Group, a Baseline Risk Assessment for the Site (*EKI, 1997*) was prepared. The *Baseline Risk Assessment* was approved by DTSC on May 16, 1997. Additional data-gathering activities conducted by the Group included implementation of a groundwater monitoring program approved by DTSC.

On the basis of the amount and nature of the data collected before the Group began its work, the *Baseline Risk Assessment*, and the data collected in the early rounds of the Group's groundwater monitoring program, the Group identified nine data gaps that needed to be filled to complete the remedial investigation. In summary, these data gaps were:

- The potential that backfill surrounding a nearby sewer box culvert (box culvert) might act as a preferential conduit for horizontal groundwater and chemical transport
- Distribution of chemicals in soil in the vacant lots located at 1211 and 1217 Shafter Avenue (the Vacant Lot) and in the eight residential backyards that are adjacent to the Facility
- Distribution of chemicals in soil southwest and southeast of the Facility boundaries beneath Thomas Avenue and Hawes Street

Follow-up Field Activities letter dated August 4, 1999, to DTSC. The Group's plan for additional work was approved by DTSC in a letter dated June 29, 1999, and implemented in July and August 1999.

The main objectives of this report are to present the results of the data-gap investigations, and to describe the overall site characterization, now that the remedial investigation is complete. This site characterization will form the basis for the *Supplemental Risk Assessment* and *Feasibility Study* activities. In the remainder of this Executive Summary, data-gap related information is described in connection with the elements of the more general site characterization.

Remedial Investigation Site Characterization and Closure of Data Gaps

The site characterization resulting from completion of the remedial investigation is summarized as follows:

- The Site is in an area of mixed industrial, commercial, and residential land uses (see Plate 2). Eight occupied residential properties, three industrial and/or commercial properties, and the Vacant Lot border the Facility along two of its property boundaries. The remaining two boundaries are formed by Thomas Avenue and Hawes Street.

- The Facility formerly was used for reconditioning used drums. It consists of the Building that occupies the northwestern half of the Facility and the Capped Yard, an open lot formerly used to store drums. The Capped Yard takes its current name from the fact that the formerly open lot now is covered with a cap to minimize infiltration of rainwater and to prevent contact with surface soil. Other nearby properties are, or have been used for industrial and commercial activities including, but not limited to, dry-cleaning, metal plating, and automotive junkyard operations.

- During investigations conducted in the last year, the depth to first-encountered groundwater in the immediate area of the Facility ranged from approximately 5 to 8 feet below ground surface. In earlier investigations, the depth to first-encountered groundwater had been several feet lower. Variations in observed depths to groundwater likely reflect annual and seasonal fluctuations related to rainfall and localized recharge, and also may reflect transient perched groundwater conditions in some areas resulting from a combination of relatively high local infiltration and relatively low local permeability.

- Although overall groundwater flow patterns for the Site are from the Hunters Point Ridge, southwest to Yosemite Canal and the San Francisco Bay, two subsurface features have been investigated to determine how they might affect groundwater flow at discrete localized areas in the vicinity of the Site. The first feature is the bedrock ridge, which is roughly parallel to Thomas Avenue and rises to

within approximately 8 to 10 feet of the ground surface under the southwestern part of the Facility. Groundwater elevation data suggest that groundwater north of the bedrock ridge appears to be diverted away from the Facility, along the bedrock ridge, to the southeast. The second feature is the sewer box culvert (further discussed in Section 2.5.1.1), which runs under Yosemite Canal from the south, northeast up Hawes Street to the intersection of Hawes Street and Thomas Avenue, and then runs southeast down Thomas Avenue to a pump station at the intersection of Thomas Avenue and Griffith Street. Site investigation activities indicate that groundwater flows preferentially in the backfill surrounding the section of the sewer box culvert near the Facility to a point about 250 feet south.

- Certain chemicals have been detected in soil gas, soil, and groundwater samples, including VOCs, metals, pesticides, PCBs, and petroleum hydrocarbons. These chemicals are not uniformly distributed throughout the Site or in the various media. Available data indicate that some of these chemicals may be related to Facility operations. In addition, available data from a potential offsite source survey indicate that there are, or have been, other facilities and activities in the area that may also have been sources of some of the same kinds of chemicals associated with the Facility. These data, together with analysis of groundwater chemical and flow data, indicate that some chemicals detected in Site groundwater come from sources other than the Facility.

- Only relatively low concentrations of VOCs have been detected in soil-vapor flux samples collected from residential backyards that are adjacent to the Facility and from the Facility itself. The DTSC-approved *Baseline Risk Assessment* concluded that upward migration of VOC vapors from soil or underlying groundwater into the air at the Site did not create VOC concentrations in air that were significantly different from background concentrations.

- Certain chemicals that may be related to Facility operations have been detected in soil samples from the Facility itself and from parts of the bordering residential backyards and the Vacant Lot. As a result of the recent work to close data gaps, the lateral extent in soil of chemicals that may be related to the Facility has now been adequately defined for purposes of the remedial investigation.

- At the Facility itself, both earlier and current sampling detected chemicals in soil samples from much of the Facility, though they are predominantly concentrated in the Capped Yard and in areas of the Building near the Capped Yard and the rear property line. Very few soil samples with concentrations above screening values were detected in the surface-soil depth range (0 to 0.5 feet) at the Facility. Analyses of data-gap soil samples from Thomas Avenue and Hawes Street indicate that chemicals

that may be associated with the Facility do not appear to extend to soil beyond the curb. Near the location where the former anomalous PCB sample was collected, current sampling indicated that PCBs are present in nearby soil, at much lower concentrations (i.e., by orders of magnitude) than the PCB result collected from the previous boring inside the Building. The earlier, relatively high PCB concentration detected in soil is not representative of general soil conditions in that area.

- In the Vacant Lot, current sampling indicates that chemicals detected at concentrations exceeding screening values and that might be related to the Facility do not extend in soil to the sidewalk along the adjoining street (Shafter Avenue). As a result, the distribution of chemicals in soil at the Vacant Lot has been defined.

- For the eight residential backyards that are adjacent to the Facility, the distribution of chemicals in soil, the cleanup levels, and the planned removal action are described in detail in the *Removal Action Work Plan* (*HLA, 1998d*). The DTSC approved the *Removal Action Work Plan* in a letter dated December 22, 1998.

- In groundwater, the highest concentrations of chemicals that might be related to the Facility have consistently been detected in samples from monitoring wells in the Capped Yard and in the Vacant Lot, near the adjacent property line with the Facility. The monitoring wells in the Capped Yard were destroyed in connection with DTSC capping activities in 1987. VOCs and petroleum hydrocarbons are the primary substances detected in groundwater at the Site that, at least in part, may be related to the Facility. Other chemicals that have been detected in soil (*e.g.*, metals, pesticides, and PCBs) generally have not been detected in groundwater, or only have been detected infrequently at relatively low concentrations or at background concentrations. These other chemicals have been deleted from the list of analyses for the groundwater-monitoring program, with DTSC's approval. The smaller number of chemicals detected in groundwater compared to soil is consistent with expectations, considering the clayey nature of the soil at the Site and the generally much-lower environmental mobility of these other classes of chemicals compared to VOCs and petroleum hydrocarbons.

- VOCs that appear to be associated with the Facility are not detected in groundwater samples collected more than a few hundred feet downgradient, or more than 30 to 40 feet crossgradient from the Facility. Petroleum hydrocarbons are detected in groundwater samples from numerous wells throughout the Site. Available information suggests that some petroleum hydrocarbons detected in groundwater within a few hundred feet downgradient, or more than 30 to 40 feet crossgradient from the Facility may be associated with the Facility. Farther from the Facility, petroleum hydrocarbons

EXHIBIT E

BEVERIDGE & DIAMOND PC

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December 7, 2011

Via Email & Certified Mail

Kathryn J. Tobias, Esq.
Senior Staff Counsel
California Department of Parks & Recreation
P.O. Box 942896
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Re: Yosemite Slough Superfund Site, San Francisco, California

Dear Ms. Tobias:

I write on behalf of the Yosemite Sough PRP Group (the "Group") to follow-up on certain issues that were raised during U.S. EPA's legal meeting regarding the Yosemite Slough Superfund Site (the "Site") last Friday, December 2, 2011.

One of the issues that was discussed at the meeting was the status of the California Department of Parks & Recreation's ("DPR") wetlands mitigation and park development project at Yosemite Slough. During the meeting, Craig Cooper of EPA reported that he had toured the Site last Wednesday, November 30, and that the project on the northern shore of the slough appeared to be largely complete: the buildings had been demolished and removed, soils had been excavated to create inlets for the wetlands, a hill had been created on the northern portion of the property, and, most notably, the portion of land that had acted as a *de facto* dike between the slough and the excavated areas on the northern side had been removed and the tidal waters of the slough had been allowed to flow into the excavated areas to create the wetlands. Reference also was made during the meeting to an article that appeared in the San Francisco Chronicle regarding the creation of the wetlands. [1]

The news that the dike had been breached came as a surprise to all of us at the meeting. During the meeting I and the EPA representatives stated that this was in direct conflict with our understanding of DPR's plans as they had been explained to us at the EPA meeting on August 18, 2011. At that meeting, which both you and Elizabeth Goldstein, Executive Director of the California Parks Foundation and featured prominently in the Chronicle article, attended, DPR

[1] See "Candlestick Point wetland reclaimed as key habitat," *San Francisco Chronicle*, November 23, 2011, page A1 (available at http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2011/11/22/MN8E1M2O2E.DTL).

informed us that it would leave a strip of land in place between the planned wetlands and Yosemite Slough until the Slough had been remediated. During the meeting last Friday, you responded to this news by stating that this was the first time that you'd heard of the dike being breached. In response to our questions about it, you committed to providing us with more information about the breach. To be more specific, please provide the following:

1. the date that the dike was breached;
2. how the breach was achieved and by whom;
3. to whom, if anyone, notice of the breach was provided in advance (*e.g.*, EPA, the City of San Francisco, adjacent property owners, community groups, other PRPs);
4. copies of all permits authorizing the breach;
5. copies of all sampling data collected during the wetlands mitigation project;
6. DPR's explanation for why it changed its plans and breached the dike before the slough sediments were remediated, and;
7. DPR's rationale for its apparent conclusion that the breach will not result in spreading any of the contamination that may exist in the slough sediments to other locations.

With regard to this last issue, I note that at the December 2 meeting EPA stated that it will define the Site's boundaries as the areal extent of where contaminants in the slough sediments have come to be located. When asked at the meeting if the Site now would be defined to include the newly created wetlands, EPA responded that it did not know at this time. In view of this, the Group hereby puts DPR on notice that, to the extent that any contamination is detected in the sediments in the newly created wetlands, DPR is solely responsible for the investigation and cleanup of any such contamination, as any such contamination clearly would not have come to be located there but for the breach of the dike. In addition, to the extent that the creation of the new wetlands changes the hydrodynamics within the slough such that any contaminants located in slough sediments may become more mobile and migrate to other locations, DPR is solely responsible for any such migration and worsening of the contamination.

Lastly, I must respond to one point that you made at the December 2 meeting. You contended that DPR was not a "contributor" PRP and was named as a PRP solely on the basis of its status as a property owner. As I noted at the meeting, this is simply incorrect. In EPA's General Notice of Potential Liability sent to DPR, EPA stated as follows:

> EPA believes that property owned by the California Department of Parks and Recreation has ***contributed to the hazardous substances which have come to be located at the Site***. EPA considers the California Department of Parks and Recreation to be a PRP at the Site as the ***current owner of property from which there was a release of hazardous substances***.

See August 11, 2008 EPA General Notice of Potential Liability to DPR at 2 (emphasis added). DPR was not named as a PRP based solely on its status as a landowner. Rather, it was named as a PRP because the evidence indicated that contamination from DPR property had spread to the Site. For example, soil sampling data showed lead contamination at multiple locations throughout the DPR property on the north side of the slough.

More recent data suggests that DPR property may be a continuing source of contamination in the slough sediments. At the August 18 EPA meeting, Dan Millsap of DPR reported that laboratory analyses of soil samples taken at DPR's property north of the slough as part of the wetlands mitigation project this year showed higher than expected levels of lead contamination. Note also that during the December 2 EPA meeting EPA confirmed that lead was not co-located with PCBs throughout the slough. In at least one sampling location, actionable levels of lead contamination were present where PCBs were not at such levels. This also suggests that there was a source of lead contamination separate from any source of PCBs.

I look forward to receiving the information that you committed at last week's meeting to provide. I am sure that the others at the meeting do so as well. Please advise as to when we can expect to receive answers to the questions set forth above.

Sincerely,

Nicholas W. van Aelstyn

Nicholas W. van Aelstyn

cc: Thanne Cox, Esq., U.S. EPA (*via email*)
Elaine M. O'Neil, Esq., City & County of San Francisco (*via email*)
John S. Roddy, Esq., City & County of San Francisco (*via email*)
Mark A. Rigau, Esq., U.S. DOJ (*via email*)
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